

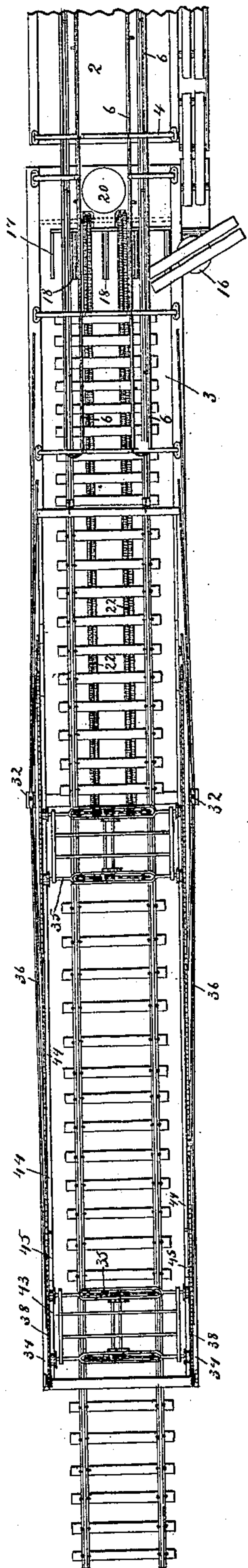
(No Model.)

4 Sheets—Sheet 1.

S. W. ROBERTS & E. P. CALDWELL.  
TRACK LAYER.

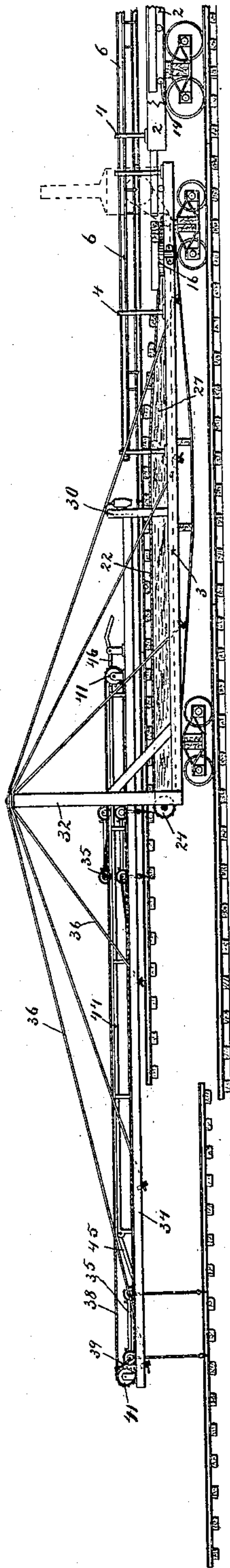
No. 400,950.

Patented Apr. 9, 1889.

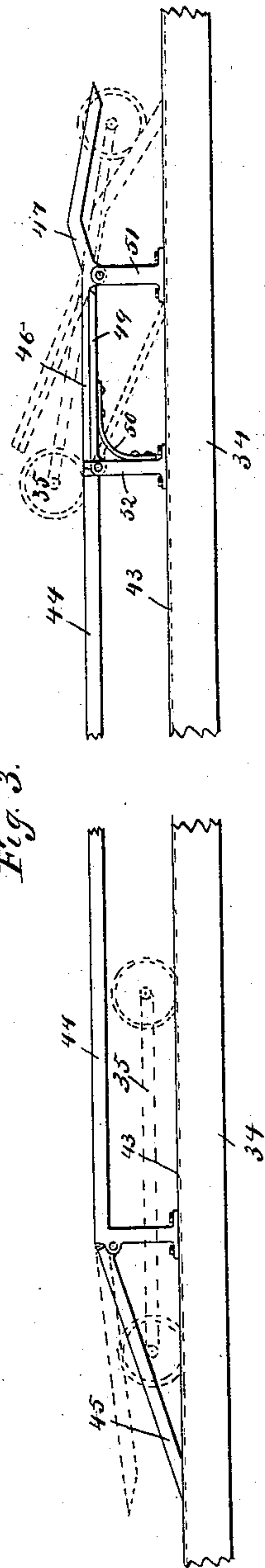


Witnesses.  
a.m. Gaskill  
J. Jessen.

Fig. 2.



*Fig. 3.*



Inventors.

Solomon W. Roberts.

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By their Attorneys  
Paul, Sanford & Merwin.

(No Model.)

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Fig. 4.

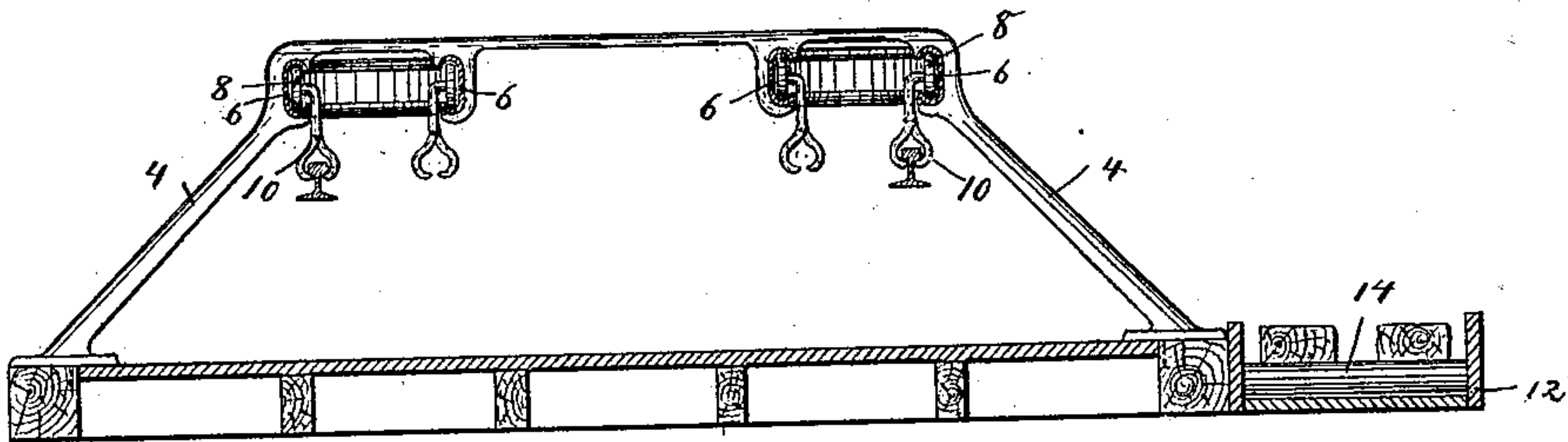


Fig. 5.

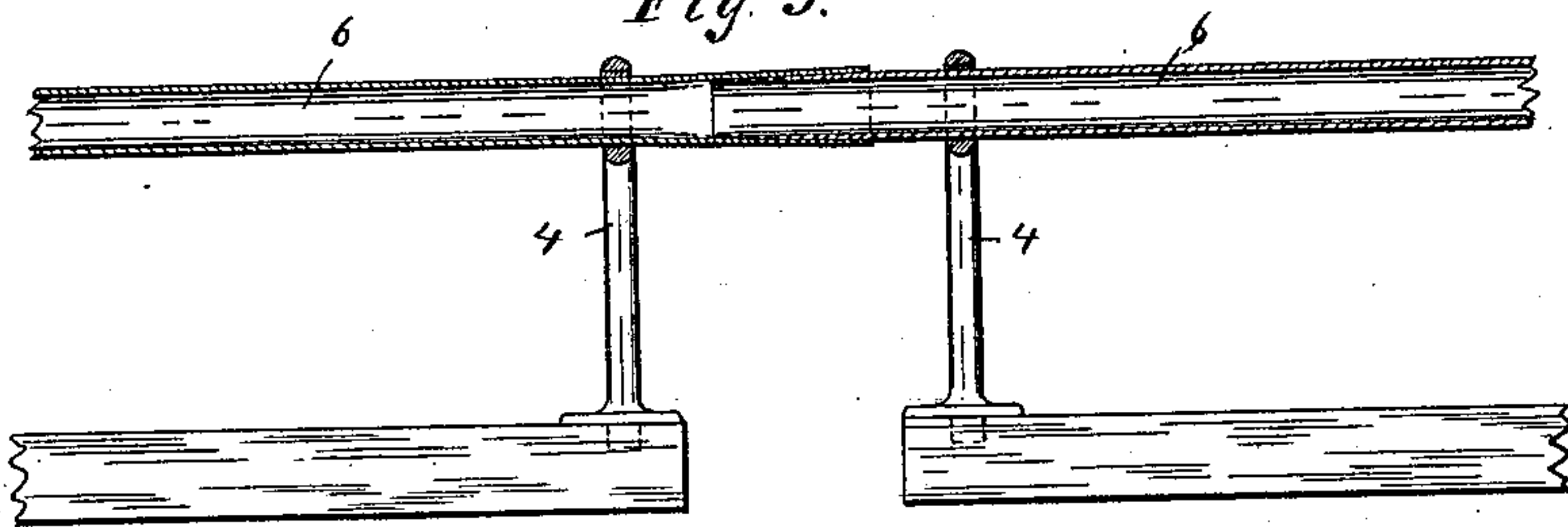
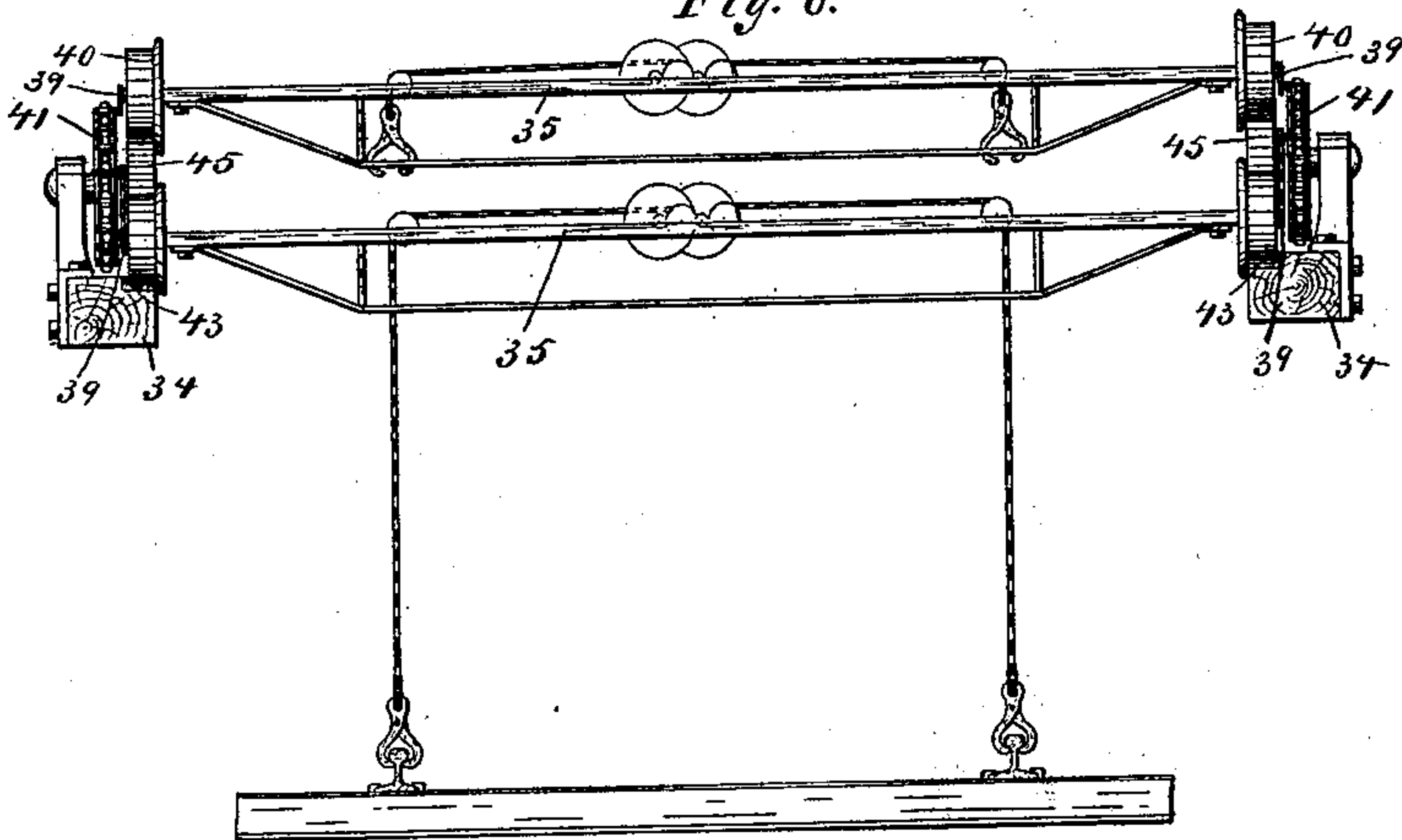


Fig. 6.



Witnesses.  
a.m. Gaskill  
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Paul Sanford & Merwin



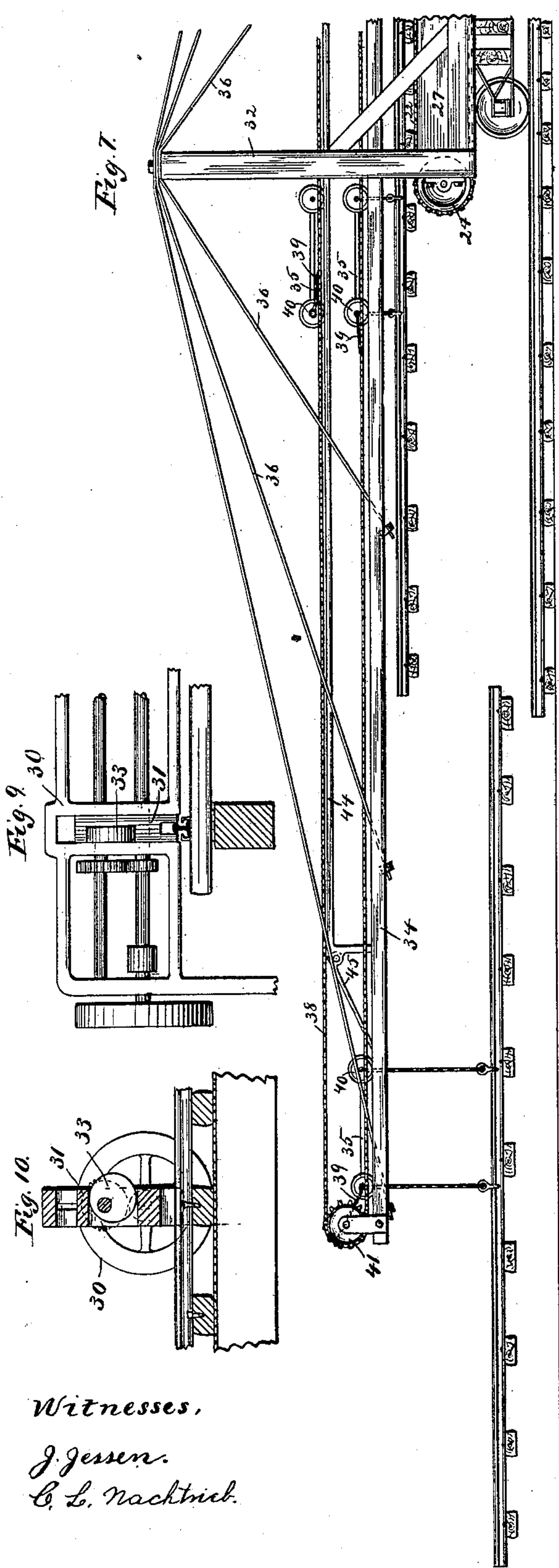
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S. W. ROBERTS & E. P. CALDWELL.  
TRACK LAYER.

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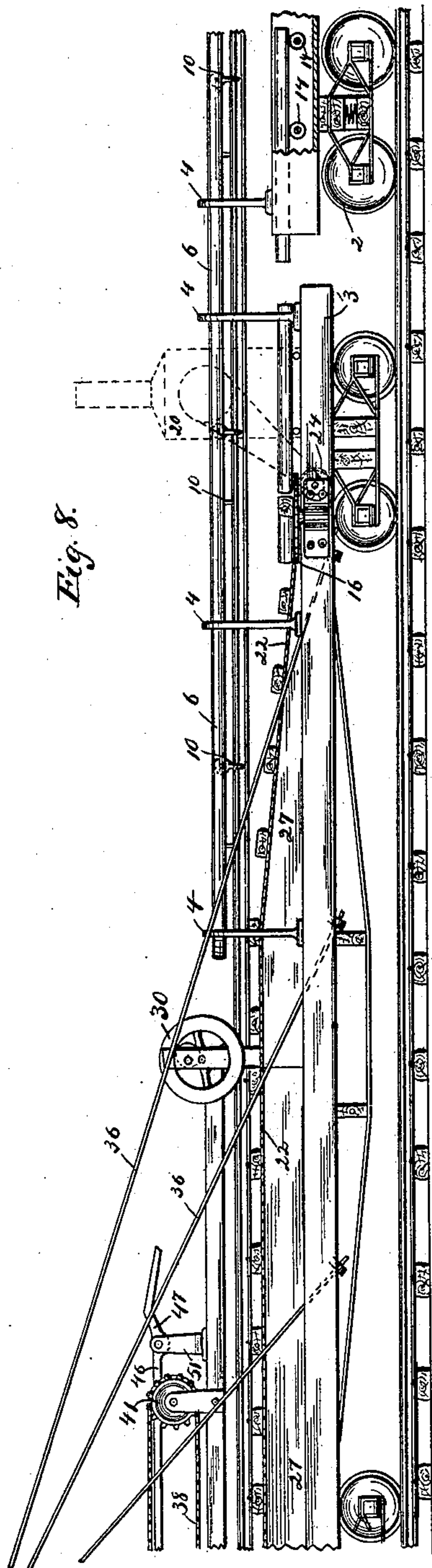
Patented Apr. 9, 1889.



Witnesses,

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C. L. Nachtrieb.



Inventors

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(No Model.)

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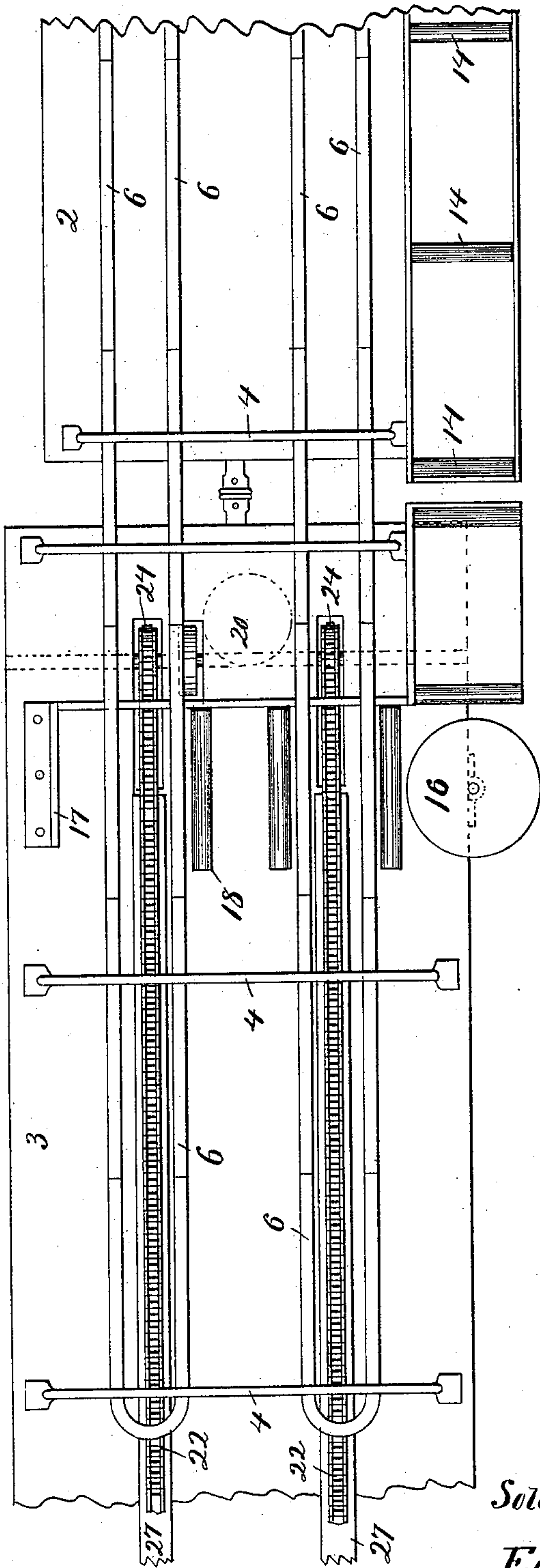
S. W. ROBERTS & E. P. CALDWELL.

TRACK LAYER.

No. 400,950.

Patented Apr. 9, 1889.

Fig. 11



Witnesses.  
a.m. gaskill.  
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# UNITED STATES PATENT OFFICE.

SOLOMON W. ROBERTS AND EDWARD P. CALDWELL, OF MINNEAPOLIS,  
MINNESOTA.

## TRACK-LAYER.

SPECIFICATION forming part of Letters Patent No. 400,950, dated April 9, 1889.

Application filed March 5, 1888. Serial No. 266,242. (No model.)

*To all whom it may concern:*

Be it known that we, SOLOMON W. ROBERTS and EDWARD P. CALDWELL, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Track-Layers, of which the following is a specification.

Our invention relates to improvements in a device for laying the sections of railroad-tracks, and the object we have in view is to provide a machine in which the rails and cross-ties will be brought together in their proper relative position and spiked or fastened to each other, forming a section of track. The section thus formed is then carried forward and deposited upon the track-bed complete and ready for use after being joined or spliced to the section previously laid.

Our invention consists, generally, in the combination and arrangement hereinafter described, and particularly pointed out in the claims.

In the drawings, which form a part of this specification, Figure 1 is a plan view of our improved track-laying machine. Fig. 2 is a side elevation of the same. Fig. 3 is a detail showing more clearly the operation of the truck for conveying forward the complete sections. Fig. 4 is a cross-section of one of the cars, showing the arrangement for conveying forward the rails and ties. Fig. 5 is a detail of the conveying-track for the rails, showing the manner of connecting them together between the cars. Fig. 6 is a front elevation of the machine. Fig. 7 is a side elevation of a portion of the machine, showing the means for carrying forward the sections of track and depositing them upon the ground. Fig. 8 is a side elevation of a portion of the machine, showing the means for carrying forward the ties and rails. Figs. 9 and 10 are details of the spiker. Fig. 11 is a partial plan view of the machine.

In the drawings, 2 represents a portion of a car of ordinary construction for carrying the rails used in laying the track.

3 represents a platform or car arranged to be coupled in advance of the car 2. This car is mounted on suitable trucks and properly braced and trussed to support the weight of the mechanism comprising our invention.

Upon the rear of this car, and upon the car 2, we prefer to place standards 4, which support the hollow tracks or carriers 6. These tracks are preferably constructed in cross-section, as shown in Fig. 4, in the form of a letter C, and receive the rolls or sheaves 8, which travel longitudinally in said track and form trolleys or carriages, which are provided with the grippers or tongs 10, which receive the rail between their jaws, and are preferably so constructed that the weight of the said rail tends to increase the hold of the jaws.

The tracks or carriers 6 are preferably constructed in two lines, the outer line for conveying the rails forward and the inner line for conveying the empty carriages back to be reloaded. Each line is provided with a semi-circular connection at the front and rear, so that after the rail has been deposited the carriages by which it was brought forward may be transferred to the inner track, and thus returned to the rear.

The standards 4 may be removably attached to the car, and may be constructed in any convenient form, and we do not confine ourselves to the form of the track 6, as any other suitable construction may be used without departing from our invention.

Any number of cars may be attached in the train and provided with the carriers for transferring the rails, so that the last car can be unloaded as easily as the first, and we thus obviate the necessity of removing the front cars from the track as soon as they are unloaded. At the point where the cars are coupled together we prefer to taper the ends of the track, so arranging them that one end will slide inside of the other, as shown in Fig. 5. Other suitable means may, however, be used for coupling the tracks together, in order to furnish a continuous track between the cars. We prefer to place a conveyer-box at the side of the car 2, preferably provided with rolls 14, arranged crosswise of the said box.

The cross-ties to be used in the construction of the track are conveyed forward over the rolls 14. At the rear of the car 3 and in line with the conveyer-box a turn-table, 16, is placed. This turn-table receives the cross-ties from the conveyer, and by it they are



turned so as to lie crosswise of the said car. Feed-rolls 18 may be arranged on the car to receive the cross-ties from the turn-table and carry them to their proper position in the center of the said car. A stop or bumper, 17, may be located at this point, against which the ends of the cross-ties strike to limit their movement and hold them in position until removed by the longitudinal carriers. An engine, 20, may be located upon this car for the purpose of driving the necessary machinery. Two or more endless chains or conveyers, 22, extend over suitable sprockets, 24, at or near the front and rear of the car 3. These chains receive the cross-ties from the rolls 18 and carry them forward. The conveyer for the first portion of its length is preferably arranged on an incline, so that the ties are moved upward against the under side of the rails, where they are in position to be spiked.

A supporting-timber, 27, may be arranged beneath the upper strands of the chain 22, upon which the said chain travels, and by which it is kept in line and prevented from sagging as the weight is brought upon it. Suitable friction-rolls may be placed upon the upper surface of this timber to allow an easier movement of the chain. The tracks 6, on which these rails are transferred, are set at the required distance apart to suit the gage of the road, so that when the rails are delivered from the carriers to the cross-ties they are in their proper relative position. The cross-ties are properly spaced upon the endless chain 22, and thus brought in contact with the under side of the rails. At this point we prefer to place a spiker, 30, which is operated in any convenient manner to drive the spikes into the cross-ties and securely fasten the rail to the said cross-ties. Any suitable device may be used for spiking the rails to the ties, or they may be spiked by hand. In Figs. 9 and 10 we have shown a device which may be used for this purpose. It consists, essentially, of a plunger, 31, operated by an eccentric, 33, that is driven by suitable mechanism and causes the plunger to have a reciprocating motion. We do not, however, claim herein the construction of the spiking mechanism, as we have claimed the same in a separate application for Letters Patent.

The endless chain 22 feeds the cross-ties and rails along after they are fastened together.

A mast or upright frame, 32, is placed at the front of the car 3, to which it is attached at each side of the track. An overhanging frame, 34, projects in front of the car 3, and is supported by the truss-rods 36, which extend from the said projecting frame over the mast and downward and are anchored to the platform of the car. The frame 34 is provided with suitable tracks, which carry two or more trucks, 35, for transferring the said sections and cross-ties from the endless chain and depositing them in line upon the ground. A

suitable link-belt or endless chain, 38, is provided with sprockets 41 and located at each side of the truck 35, and the said truck is secured to the belt by a flexible connection, 39. The truck-frame is made of any suitable form supported upon wheels 40, which are arranged to travel upon a track, 43, formed upon the projecting frame 34. The connection 39 between the truck and link-belt is of sufficient length to allow the truck to be drawn by the said belt nearly to the end of the frame, when the connection 39, being attached to one of the links of the chain 38, will pass around the sprocket 41 and draw the truck in the opposite direction.

When more than one truck is in use upon the same belt, it is desirable to provide means for the said trucks passing each other, which we do as follows: A track, 44, is arranged over the track 43, with sufficient distance vertically between the two to allow the wheels of the truck to pass freely. At the front a drop-switch, 45, is placed, as shown in detail in Fig. 3, which is so arranged that the truck in passing out on the track 43 will raise the said switch and pass under it. As soon as the last wheel of the truck has passed the switch it will drop, and when the motion of the truck is reversed the wheels will be drawn upward on the incline of this switch and carried onto the upper track, 44. At the rear, in order to provide means for bringing the truck back to the track 43, we prefer to provide a pivoted rail, 46, supported upon the standard 51, upon which it is allowed to swing. One end of this rail rests upon the support and forms a continuation of the track 44. The opposite or overhanging end of the said rail is preferably provided with the projection 47 upon its upper surface, against which the truck-wheel strikes to quickly depress the free end of the rail. A bar, 49, is preferably hinged to the support and is held against the under side of the pivoted rail 46 by means of a spring, 50, suitably arranged to overcome the weight of the said bar and hold it in a horizontal position, except when depressed by the truck-wheel. As the truck is drawn back on the track 44, the wheels in advance strike the projection 47, and the weight of the truck causes the pivoted rail 46 to assume the position shown in dotted lines in Fig. 3, and these advance wheels pass down the incline formed by the rail onto the track 43. The back wheels will pass under the rail 46 and be received by the bar 49, which will be depressed, as shown in dotted lines in Fig. 3, and allow the said wheels to follow down the incline formed by this bar and pass onto the track 43. As soon as the wheels of the truck have left the rail 46 and the bar 49 they are caused to assume their original horizontal position, and the truck is allowed to pass forward under them on the lower track, 43. The trucks receive their load from the endless chains 22, and as a section (comprising the two rails and a suitable number



of cross-ties) is completed it is passed forward by the conveyer-chains 22 and over the front end of the car 3. At this point one of the trucks 35 is brought in position over the said section and attached thereto by suitable clamps and cables upon the truck. The section may now be raised free from the conveyer-chains, and the truck 35 drawn by the chains 38 will carry the section forward to the end of the frame 34. After the rear of the section has been carried clear of the front of the car 3 the section can be lowered, so that by the time the truck has reached its forward limit the section will rest upon the ground and the carriage will be at rest, while the flexible connection 29 is carried around the sprocket, which will give time to detach the section, and a continuous motion of the conveyer-chains may be kept up.

We do not confine ourselves to the continuous action of the machine, as either of the conveyer-chains may be stopped by throwing out of gear mechanism by which they are driven.

We claim as our invention—

1. The combination, in a track-layer, of carriers for moving forward the rails at the required gage for the track, means for introducing the ties beneath the rails, and a conveyer for moving forward the ties and bringing them against the under surfaces of the rails, substantially as described.

2. The combination, in a track-layer, of carriers for moving forward the rails, a transverse conveyer for moving the ties beneath the rails, and a conveyer arranged upon an incline for a portion of its length and adapted to carry the ties against the under surface of the rails, and then to move forward the ties and rails together, during which latter operation they may be spiked together.

3. The combination, in a track-layer, of a car or platform, a conveyer traveling longitudinally on said platform, upon which the cross-ties are distributed and by which they are carried forward, and suitable carriers delivering the rails at the required gage upon the cross-ties while said ties are upon the conveyer, substantially as described.

4. The combination, in a track-layer, of a car or platform, a conveyer traveling longitudinally of said platform, upon which the cross-ties are distributed and by which they are carried forward, suitable carriers delivering the rails at the required gage upon the cross-ties while the said ties are on the conveyer, and a spiker for fastening the rails to the cross-ties as they are brought in contact, as described.

5. The combination, in a track-layer, of a car, a conveyer traveling longitudinally of said car for distributing the ties, carriers delivering the rails upon said ties while said ties are upon the conveyer, the projecting or overhanging frame secured to the car and provided with a track or tramway, and a truck traveling on said track and adapted to re-

ceive the completed sections from the conveyer and deliver them upon the road-bed, substantially as described.

6. The combination, in a track-layer, of a car, a frame supported upon said car and projecting longitudinally in front thereof, trucks arranged to travel on said frame, a suitable track, 43, on which the trucks are drawn in one direction, and the stationary track 44, arranged over said track 43, and provided with switches 45 and 47 for transferring the trucks from one track to the other, substantially as described.

7. The combination, in a track-layer, of the track 43, the track 44, arranged above said track 43, and provided with the switches 45 and 47, the driving-chain 38, and the carriage 35, arranged to be moved forward on the lower track and to be returned upon the upper track, substantially as described.

8. The combination, in a track-layer, with the track 43 and the track 44, arranged above the track 43, of the carriage 35, arranged to travel on either of said tracks, and the driving-chain 38, connected to said carriage, substantially as described.

9. The combination, with the track 43, of the track 44, arranged above said track 43, the switch 45, pivoted in line with the track 44 and adapted to rest on said track 43, the carriage 35, arranged to travel over said tracks, the endless driving-chain 38, the sprockets 41, and the connecting-chain 39 between said chain 38 and said carriage and adapted to pass around said sprockets, for the purpose set forth.

10. The combination, with the tracks 43 and 44, arranged one above the other, of the automatic switches 45 and 47, arranged at the ends of said upper track, the carriage and the endless driving-chain connected therewith, whereby said carriage may be moved over said tracks and automatically transferred from one to the other, substantially as described.

11. The combination, with the car 2, of the tracks 6, extending over said car, and the carriages 8, arranged to travel on said tracks and provided with the grippers 10, adapted to hold the rails, substantially as described.

12. The combination, with the car 2, of the tracks 6, extending forward and back over said car and provided with the curved portion connecting its forward ends, and the carriage 8, arranged to travel on said tracks and provided with the grippers 10, adapted to hold the rails, substantially as described.

13. The combination, in a track-layer, with the cars 2 and 3, of the tracks 6, extending forward over said car 2, and provided with the carriages 8, adapted to support and carry the rails, the conveyer 22, arranged upon said car 3, and adapted to move forward the cross-ties and distribute them beneath the rails as they are moved forward by the carriages 8, a spiker, 30, arranged upon the car 3 and adapted to spike the rails and ties to-



gether, the projecting frame 34, supported  
upon the forward end of said car 3, and the  
carriages 35, arranged upon said frame and  
adapted to take the completed sections of  
5 track from said conveyer-frame 2 and move  
them forward and deposit them upon the  
road-bed, substantially as described.

In testimony whereof we have hereunto set  
our hands this 29th day of February, 1888.

SOLOMON W. ROBERTS.  
EDWARD P. CALDWELL

In presence of—

A. M. GASKELL,  
A. C. PAUL.